Department of Education | College, Career and Technical Education

Nutrition Across the Lifespan

Primary Career Cluster:	Human Services
Program Manager:	Elizabeth Rafferty, (615) 532-2840, Elizabeth.Rafferty@tn.gov
Course Code(s):	6005
Prerequisite(s):	*Introduction to Human Studies* (6137)
Credit:	1
Grade Level:	10
Graduation Requirements:	This course satisfies one of three credits required for an elective focus when taken in conjunction with other Human Services courses.
Programs of Study and Sequence:	This is the second course in the *Dietetics and Nutrition* program of study.
Aligned Student Organization(s):	Family, Career and Community Leaders of America (FCCLA): http://www.tennesseefccla.org/ Pamela Sieffert, (615) 532-6270, Pamela.Sieffert@tn.gov
Coordinating Work-Based Learning:	Teachers are encouraged to use embedded WBL activities such as informational interviewing, job shadowing, and career mentoring. For information, visit https://www.tn.gov/education/career-and-technical-education/work-based-learning.html.
Available Student Industry Certifications:	None
Dual Credit or Dual Enrollment Opportunities:	There are no known dual credit/dual enrollment opportunities for this course. If interested in developing, reach out to a local postsecondary institution to establish an articulation agreement.
Teacher Endorsement(s):	050, 051, 154, 450
Required Teacher Certifications/Training:	None
Teacher Resources:	https://www.tn.gov/education/career-and-technical-education/career-clusters/cte-cluster-human-services.html

Course Description

Nutrition Across the Lifespan is for students interested in learning more about becoming a dietitian, nutritionist, counselor, or pursing a variety of scientific, health, or culinary arts professions. Upon completion of this course, proficient students will understand human anatomy and physiological systems, nutrition requirements, as well as social, cultural, and other impacts on food preparation

and integrity. Artifacts will be created for inclusion in a portfolio, which will continue to build throughout the program of study.

Program of Study Application

This course is an applied knowledge course in the *Dietetics & Nutrition* program of study. For more information on the benefits and requirements of implementing this program in full, please visit the Human Services website at https://www.tn.gov/education/career-and-technical-education/career-clusters/cte-cluster-human-services.html.

Course Standards

Safety & Sanitation

1) Compile and critique safety and sanitation procedures related to handling, preparing, storing, and serving food from industry-approved technical manuals and government published fact sheets. Identify and review general common laboratory safety procedures including but not limited to prevention and control procedures and personal hygiene expectations. Incorporate safety procedures and complete safety test with 100 percent accuracy.

Nutrition and Health Overview

2) Synthesize research published by government agencies or academic journals on the contribution of nutrition and exercise to achieving optimum physical, mental, and social well-being at all stages of development across the life span. Create an informative essay illustrating findings on the nutritional needs of individuals and families in relation to age, gender, activity level, and health status.

Anatomy and Physiology of Nutrition

3) Create a model or graphic illustration that identifies the major anatomic structures of the gastrointestinal (GI) system. Explain the function of each structure in the process of digestion, absorption, transport, and use of nutrients in the body. Research and develop a logical explanation of how the body deals with deficiencies and excess nutrients, citing specific textual evidence on the impact on an individual's health.

4) Identify, analyze, and visually represent the macro- and micro-nutrients required in the human diet. Include the common food sources of those nutrients, their chemical properties, and function in the body, as well as the influence upon biological systems in reference to maintenance and growth.
    a. Macro nutrients include: carbohydrates, lipids, and proteins
    b. Micro nutrients include: minerals, vitamins, and water

Nutritional Requirements Across the Lifespan

5) Accurately read, interpret, and communicate understanding of guidance from the U.S. Food and Drug Administration (FDA), and other regulators, such as nutrition labels and daily value

recommendations using accurate symbols, key terms, and other domain-specific words and phrases.

6) Research and prepare informational artifacts for consumers that present the specific nutritional guidelines for each stage of the life span using scientifically accurate terms and symbols. Life span phases should include:
    a. Birth to 1 year
    b. Toddlerhood
    c. Preschool
    d. School age
    e. Puberty and adolescence
    f. Pregnant and lactating females
    g. Early adulthood
    h. Middle adulthood
    i. Late adulthood

7) Analyze a variety of meal plans that meet nutritional requirements (caloric and RDA) as recommended by the U.S. Food and Drug Administration (FDA). Create a meal plan that addresses the nutritional needs of a specific individual based on their age, gender, activity level and other factors, and justify choices using evidence. Select, prepare, and serve food(s) from the meal plan following recipes precisely, including defining and utilizing specific culinary and measurement terms as needed. Practice proper serving and etiquette principles during appropriate situations.

8) Keep a food journal and compare an individual's diet to nutritional recommendations for their respective age, gender, activity level, and health status. Write a summary of the findings and include conclusions drawn on recommendations of how the diet could be modified to make up for deficiencies and excesses.

9) Compare and contrast alternative diet and lifestyle approaches to recommended dietary requirements for individuals of the same age and gender. Explain the reasons for the dietary differences in an informational artifact summarizing information to describe the physiological differences of the lifestyles, including, but not limited to:
    a. Differences in physical activity (i.e. athletic training)
    b. Differences in religious or ethical values (i.e. vegetarian, vegan, kosher)
    c. Differences based on disease or physiological need (i.e. gluten free, elimination or rotation diets)

Food Preferences and Choices

10) Research and summarize in an explanatory text the factors that contribute to food choices and preferences including cultural, geographical, economic, psychological, and societal influences. Describe the most likely results of preferences and external factors on nutritional intake.
    a. Example of geographical external factor on nutritional intake: Individual living in an area without adequate sunlight exposure may need to eat a diet rich in Vitamin D to make up for vitamin deficiency.

b. Example of geographical preference on food choice: Individual living in a colder climate might prefer methods of cooking that keep heat in the living area, while an individual living in a warmer climate might prefer preparation methods that reduce heat.

11) Form a hypothesis and design and conduct an experiment to identify the role of the senses and/or food preparation techniques in food choices. Summarize experiment results into an argument making a claim about the impact of variables on food choice. Compare results to findings in news media and note when findings support or contradict previous explanations or accounts.

12) Research nutritional claims of various diets and use appropriate/reliable sources of nutritional information to determine the validity of those claims. Use nutritional databases, food label information, and other sources to analyze the nutrient composition of one day of foods on each diet investigated. Create a graphic illustration comparing actual nutrition provided by each diet to the recommended nutrition requirements for an individual with specific characteristics, noting similarities and differences in two diets.

Nutritional Issues and Controversies

13) Synthesize evidence from multiple sources to analyze topics in nutrition, including but not limited to:
    a. The use of genetically modified foods
    b. Artificial sweeteners versus natural sugar
    c. Organic and local food movements
    d. Benefits and risk of different forms of dieting
    e. Use of probiotics

    Evaluate the validity and credibility of source materials and deduce the principle arguments for each, carefully weighing the author's evidence against potential biases.

14) Describe the correlation of energy balance, lifestyle, diet, age, gender, and metabolism to the obesity epidemic in America. Compare and contrast how different diets, habits, heredity, and physical characteristics contribute to obesity. Research various initiatives that have sought to fight obesity and improve nutrition across the nation. Summarize the intended result of an initiative in an explanatory essay, informational artifact, or presentation.

Food Preparation and Integrity

15) Investigate the food supply from point of origin to the point of sale – analyzing handling, transportation, storage, processing, and packaging – to identify where food safety and nutritional value could be compromised. Compare this to the food handling, transportation, storage, processing, and preparation from point of sale to the table by creating a graphic illustration indicating where food is most susceptible to contamination, food-borne illness, spoilage, and nutrient loss.

16) Demonstrate food selection and preparation methods that maximize the nutritional value of foods while minimizing dietary health risks. Plan and conduct nutrition laboratory

experiments to determine the physical and chemical changes of food structure through chemical reactions. Communicate results of experiences, including comparing and contrasting results to findings in a report. Demonstrate relationships among concepts including, but not limited to:

a. Heat
b. Acidity level
c. Fermentation
d. Millard reactions
e. Chemically processed foods
f. Preparation techniques and product yield

The following artifacts will reside in the student's portfolio:

- Illustration of Nutrition Needs
- Graphic or Model & Explanation of GI Tract
- Macro & Micro Nutrient artifact
- Informational Artifact for Consumers
- Analysis of Meal Plans
- Food Journal
- Food Preferences artifact
- Summarized Results from Food Prep Techniques Experiment
- Illustration of Nutrition Claims
- Nutritional Issues Comparison
- Food Integrity illustration
- Food Lab Reports

Standards Alignment Notes

*References to other standards include:

- FACS: National Standards for Family and Consumer Sciences Education, Second Edition: National Association of State Administrators of Family and Consumer Sciences, FACS.
- P21: Partnership for 21st Century Skills Framework for 21st Century Learning
    - Note: While not all standards are specifically aligned, teachers will find the framework helpful for setting expectations for student behavior in their classroom and practicing specific career readiness skills.